Dell™ Latitude™ E6500 Service Manual

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

WARNING: A WARNING indicates potential for property damage, personal injury, or death.

If you purchased a DELL™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

Model PP30L

September 2009 Rev. A02

Base Assembly

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Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

Removing the Bottom of the Base Assembly

1. Follow the procedures in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Loosen the M2.5 x 5-mm capture screw.
4. Using the rubber feet for leverage, slide the bottom of the base assembly away from computer, then lift to remove it.



1	M2.5 x 5-mm captive screw	2	rubber feet
3	bottom of base assembly		

Replacing the Bottom of the Base Assembly

1. Slide the bottom of the base assembly into place.
2. Replace the M2.5 x 5-mm captive screw.

Removing the Base Assembly

1. Follow the procedures in Before Working on Your Computer.
2. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
3. Remove the system board (see Removing the System Board Assembly).

Replacing the Base Assembly

1. Replace the system board (see Replacing the System Board Assembly).
2. Replace the bottom of the base assembly (see Replacing the Bottom of the Base Assembly).

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Before Working on Your Computer

Dell™ Latitude™ E6500 Service Manual

This document provides procedures for removing and installing the components in your computer. Unless otherwise noted, each procedure assumes that:

- You have performed the steps in Before Working on Your Computer.
- You have read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at **www.dell.com/regulatory_compliance.**
- When replacing a component, you have already removed the original, if installed.

NOTE: The color of your computer and certain system components may appear differently than shown in this document.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- Phillips screwdriver
- Small plastic scribe
- Flash BIOS update (see the Dell Support website at **support.dell.com**)

What You Need to Know for Your Safety

Use the following safety guidelines to help protect your computer from potential damage and to help ensure your own personal safety.

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

CAUTION: When disconnecting a cable, pull on the cable's connector or on its strain-relief loop, not on the cable itself. For cable connectors with locking tabs, press inward on the locking tabs to release the connector. When connecting a cable, ensure that the connectors are correctly oriented and aligned to avoid damage to the connector and/or the connector's pins.

1. Ensure the work surface is flat and clean to prevent the computer cover from being scratched.
2. Shut down your computer.
   - In Windows XP, click **Start**→ **Shutdown**→ **Shutdown**.
   - In Windows Vista, click **Start** , click the arrow icon, and then click **Shut Down** to turn off your computer.

   NOTE: Ensure the computer is off and not in a power management mode. If you cannot shut down the computer using the operating system, press and hold the power button for 4-6 seconds.
3. Disconnect your computer and all attached devices from their electrical outlets.
4. Disconnect any telephone or network cables from the computer.

CAUTION: To disconnect a network cable, first unplug the cable from your computer, and then unplug it from the network wall jack.

5. Remove any installed cards.

CAUTION: To help prevent damage to the system board, remove the battery from the battery bay before you service the computer.

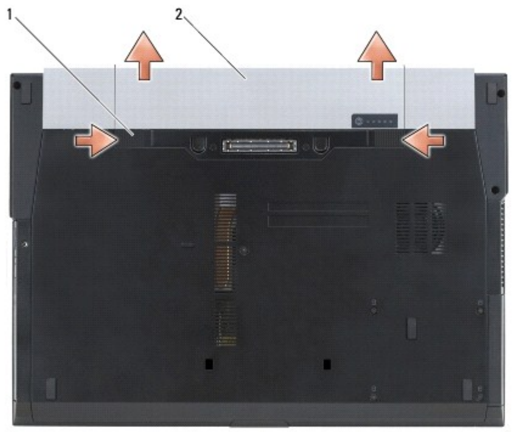
NOTE: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.

6. Turn the computer over.

Removing the Battery

1. Slide the battery release latches to the open position. (The latches lock into place).

2. Grip the battery and slide it out of the battery bay.

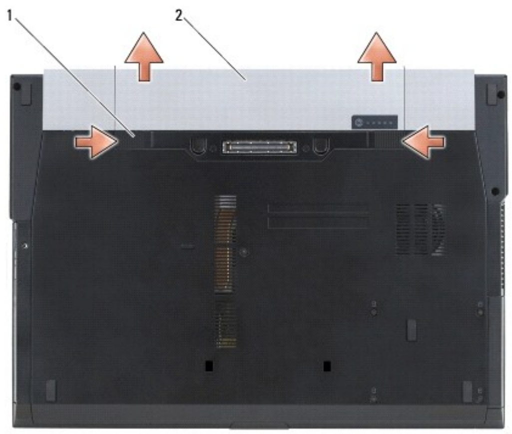


1	battery release latches (2)	2	battery

3. Turn the computer top-side up, open the display, and press the power button to ground the system board.

Replacing the Battery

To replace a battery, slide it into the battery bay until it clicks into place.



1	battery release latches (2)	2	battery

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Flashing the BIOS

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If a BIOS-update program CD is provided with a new system board, flash the BIOS from the CD. If you do not have a BIOS-update program CD, download the update from the Dell™ Support website at **support.dell.com** and flash the BIOS from the hard drive.

Flashing the BIOS From a CD/DVD

CAUTION: Plug the AC adapter into a known good power source to prevent a loss of power during the flash BIOS update process. Failure to do so may cause system damage.

1. Ensure the AC adapter is plugged in and that the main battery is installed properly.

2. Insert the BIOS-update media, and turn on/restart the computer.

3. On the Dell logo screen, tap <F12> a couple of times to bring up the **One Time Boot Menu**.

4. Choose to boot from **CD/DVD Drive**.

   If you do not use the **One Time Boot Menu**, you can change the boot order in the system setup program to boot from the optical drive.

CAUTION: Do not interrupt the BIOS update process once it begins. Doing so may cause system damage.

   Follow the instructions that appear on the screen. The computer continues to boot and updates the new BIOS. When the flash update is complete, the computer reboots automatically.

5. Remove the flash BIOS update media from the drive.

Flashing the BIOS From the Hard Drive

CAUTION: Plug the AC adapter into a known good power source to prevent a loss of power during the flash BIOS update process. Failure to do so may cause system damage.

1. Locate the latest BIOS update file for your computer on the Dell Support website at **support.dell.com** and follow the instructions to download it on your computer's desktop.

2. Ensure the AC adapter is plugged in to the computer and to a known-good power source, and the main battery is properly installed.

3. Double-click the file icon on the desktop and follow the instructions on the screen.

CAUTION: Do not interrupt the BIOS update process once it begins. Doing so may cause system damage.

4. The computer reboots and the flash BIOS update process completes.

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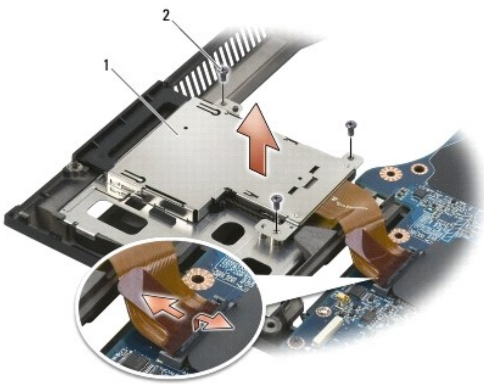
Card Cage

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Removing the Card Cage

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the procedures in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
4. Remove the hinge covers (see Removing the Hinge Covers).
5. Remove the palm rest assembly (Removing the Palm Rest Assembly).
6. If a card is in the cage, remove the card.
7. Remove the three M2 x 3 screws.
8. Push the carrier to one side to release it from the system board, then pull the carrier in the opposite direction to remove the carrier.



1	card carrier	2	M2 x 3 screws (3)

Replacing the Card Cage

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Attach one side of the carrier and then the other and set it in place.
2. Replace the three M2 x 3 screws.
3. Replace the palm rest assembly (Replacing the Palm Rest Assembly).
4. Replace the hinge covers (see Replacing the Hinge Covers).
5. Replace the bottom of the base assembly (see Replacing the Bottom of the Base Assembly).

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Coin-Cell Battery

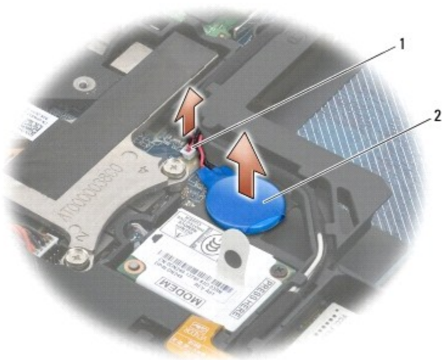
Dell™ Latitude™ E6500 Service Manual

Removing the Coin-Cell Battery

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

CAUTION: Disconnecting the coin-cell battery from the system board with no other power source causes the BIOS to reset to the default configuration and sets the real-time clock to the build date. System configuration changes made in the BIOS by the user must be re-entered, and the system clock must be set.

1. Follow the procedures in [Before Working on Your Computer](#).
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see [Removing the Bottom of the Base Assembly](#)).
4. Pry up the coin-cell battery to release the double-sided adhesive tape on the bottom.
5. Lift the coin-cell battery out of the computer.
6. Disconnect the coin-cell battery cable from the system board.



1	battery cable connector	2	coin-cell battery

Replacing the Coin-Cell Battery

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Connect the coin-cell battery cable to the system board.
2. Insert the coin-cell battery into the computer.
3. If you are re-installing the old coin-cell battery, slide the battery under the tab, and press down to seal the tape on the bottom.
   If you are installing a new coin-cell battery, remove the adhesive backing from the battery and slide the battery under the tab. Press to seal the tape on the bottom.
4. Replace the bottom of the base assembly (see [Replacing the Bottom of the Base Assembly](#)).
5. Replace the battery (see [Replacing the Battery](#)).

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Processor Module

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- Removing the Processor Module
- Replacing the Processor Module

Removing the Processor Module

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

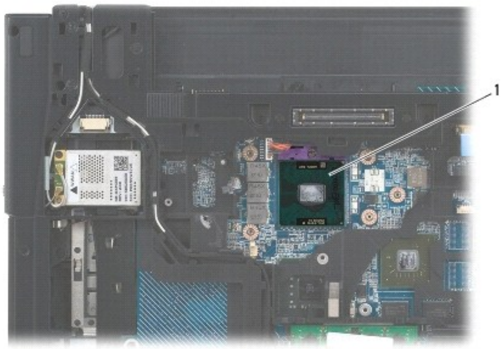
1. Follow the instructions in Before Working on Your Computer.

2. Close the display and turn the computer over.

3. Remove the bottom of the computer (see Removing the Bottom of the Base Assembly).

4. Remove the fan (see Removing the Fan).

5. Remove the processor thermal-cooling assembly (see Removing the Processor Thermal-Cooling Assembly).



1	processor module		

CAUTION: To avoid damage to the processor, hold the screwdriver so that it is perpendicular to the processor when turning the cam screw.

6. To loosen the ZIF socket, use a small, flat-blade screwdriver and rotate the ZIF-socket cam screw counterclockwise until it comes to the cam stop.



1	ZIF-socket cam screw	2	ZIF socket

CAUTION: To ensure maximum cooling for the processor, do not touch the heat transfer areas on the processor thermal-cooling assembly. The oils in your skin can reduce the heat transfer capability of the thermal pads.

CAUTION: When removing the processor module, pull the module straight up. Be careful not to bend the pins on the processor module.

7. Lift the processor module from the ZIF socket.

Replacing the Processor Module

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

CAUTION: Do not touch the processor die. Press and hold the processor down on the substrate on which the die is mounted while turning the cam screw to prevent intermittent contact between the cam screw and processor.

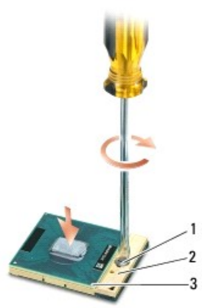
CAUTION: Ensure the cam lock is in a fully open position before seating the processor module. You do not have to use force for seating the processor module properly in the ZIF socket. A processor module that is not properly seated can result in an intermittent connection or permanent damage to the microprocessor and ZIF socket.

NOTE: If a new processor is installed, you will receive a new thermal-cooling assembly, which will include an affixed thermal pad, or you will receive a new thermal pad along with a tech sheet illustrating proper installation.

1. Align the pin-1 corner of the processor module with the pin-1 corner of the ZIF socket, then insert the processor module.

NOTE: The pin-1 corner of the processor module has a triangle that aligns with the triangle on the pin-1 corner of the ZIF socket.

When the processor module is properly seated, all four corners are aligned at the same height. If one or more corners of the module are higher than the others, the module is not seated properly.



1	ZIF-socket cam screw	2	ZIF socket
3	pin-1 corner		

CAUTION: To avoid damage to the processor, hold the screwdriver so that it is perpendicular to the processor when turning the cam screw.

2. Tighten the ZIF socket by turning the cam screw clockwise to secure the processor module to the system board.

3. Replace the processor thermal-cooling assembly (see Replacing the Processor Thermal-Cooling Assembly).

4. Replace the fan (see Replacing the Fan).

5. Replace the bottom of the base assembly (see Removing the Bottom of the Base Assembly).

6. Replace the battery (see Replacing the Battery).

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Processor Thermal-Cooling Assembly

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- Removing the Processor Thermal-Cooling Assembly
- Replacing the Processor Thermal-Cooling Assembly

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

There are two types of thermal solutions for your computer:

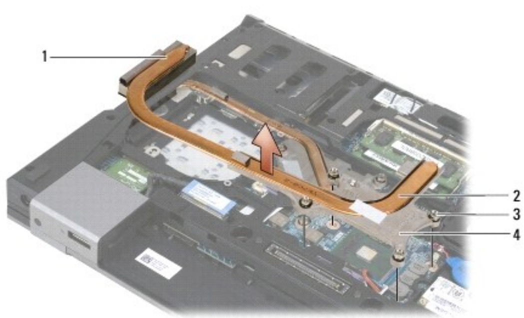
- Discrete graphics that requires two thermal-cooling assemblies.
- Integrated graphics (does not include a discrete graphics processor) that requires one thermal-cooling assembly.

Removing the Processor Thermal-Cooling Assembly

Discrete Graphics Thermal-Cooling Assembly

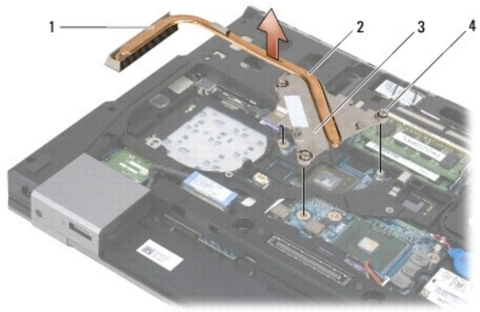
If you have purchased a system board containing the discrete graphics option, complete the following steps:

1. Follow the instructions in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
4. Remove the fan (see Removing the Fan).
5. Loosen the four captive screws (in sequential order) securing the processor thermal-cooling assembly to the system board.
6. Lift the screw-end of the assembly at an angle, then ease the vent-end of the assembly out of the computer.



1	vent-end of assembly	2	processor thermal-cooling assembly
3	captive screws (4)	4	screw-end of assembly

7. Loosen the three captive screws that secure the graphics thermal-cooling assembly to the system board.
8. Lift the screw-end of the assembly up at an angle, then ease the vent-end of the assembly out of the computer.

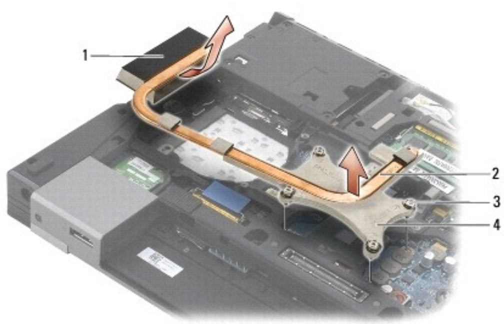


1	vent-end of assembly	2	processor thermal-cooling assembly
3	screw-end of assembly	4	captive screws (4)

Integrated Graphics Thermal-Cooling Assembly

If you have purchased a system board with integrated graphics, follow these steps:

1. Follow the instructions in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
4. Remove the fan (see Removing the Fan).
5. Loosen the four captive screws securing the thermal-cooling assembly to the system board.
6. Lift the screw-end of the assembly up at an angle, then ease the vent-end of the assembly out of the computer.



1	vent-end of assembly	2	processor thermal-cooling assembly
3	captive screws (4)	4	screw-end of assembly

Replacing the Processor Thermal-Cooling Assembly

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

Discrete Graphics Thermal-Cooling Assembly

1. Place the vent-end of the graphics thermal-cooling assembly into the computer at an angle, then align the three captive screws on the thermal-cooling assembly with the screw holes on the system board.
2. In sequential order, tighten the three captive screws to secure the thermal-cooling assembly to the system board.

3. Replace the fan (see Replacing the Fan).

4. Replace the bottom of the base assembly (see Removing the Bottom of the Base Assembly).

5. Replace the battery (see Replacing the Battery).

Integrated Graphics Thermal-Cooling Assembly

1. Place the vent-end of the thermal-cooling assembly into the computer at an angle, then align the four captive screws on the thermal-cooling assembly with the screw holes on the system board.

2. In sequential order, tighten the four captive screws to secure the thermal- cooling assembly to the system board.

3. Replace the fan (see Replacing the Fan).

4. Replace the bottom of the base assembly (see Removing the Bottom of the Base Assembly).

5. Replace the battery (see Replacing the Battery).

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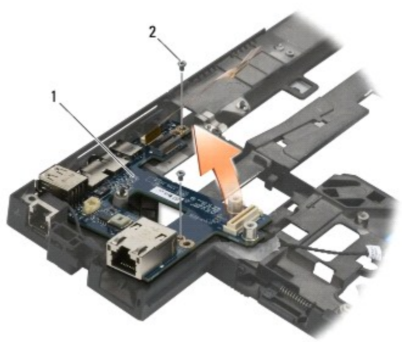
I/O Daughter Card

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Removing the I/O Daughter Card

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the procedures in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
4. Remove the (see Removing the Hinge Covers).
5. Remove the palm rest assembly (see Removing the Palm Rest Assembly).
6. Remove the system board (see Removing the System Board Assembly).
7. Remove the modem (see Removing the Modem).
8. Remove the two M2 x 3-mm screws from the I/O daughter card.
9. Remove the I/O daughter card.



1	I/O daughter card	2	M2 x 3-mm screws (2)

Replacing the I/O Daughter Card

Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Place the I/O daughter card in the base assembly.
2. Replace the two M2 x 3-mm screws to secure the I/O daughter card to the base assembly.
3. Replace the modem (see Replacing the Modem).
4. Replace the system board (see Replacing the System Board Assembly)).

5. Replace the palm rest assembly (Replacing the Palm Rest Assembly).

6. Replace the hinge covers (see Replacing the Hinge Covers).

7. Replace the bottom of the base assembly (see Replacing the Bottom of the Base Assembly).

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Display

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NOTE: Some graphics may vary slightly, depending on whether you ordered a cold-cathode fluorescent lamp (CCFL) display or an LED display.

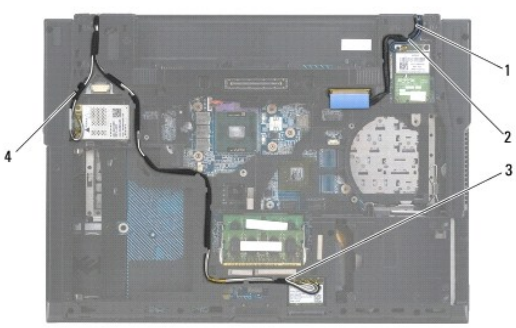
Removing the Display Assembly

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the instructions in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
4. Remove the hinge covers (see Removing the Hinge Covers).
5. Disconnect the display cable, the WPAN cable, and the modem cable.

CAUTION: After unrouting the cables, place all cables to the rear and away from the computer.

6. Unroute the display cable and the wireless cables (WLAN, WWAN, and WPAN).



1	display cable	2	WPAN cable
3	WLAN cable	4	WWAN cable

7. Remove the M2.5 x 5-mm screws from each hinge.



1	M2.5 x 5-mm screws (2)

8. Turn the computer top-side up.

9. Open the display to 90-degrees and lift the display assembly off the base assembly.



1	display assembly	2	base assembly

Replacing the Display Assembly

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

CAUTION: After unrouting cables, position the cables to the rear and away from the base assembly before installing the display assembly.

1. Align the display hinges with the holes in the base of the computer and lower the display into place.

2. Replace the two each M2.5 x 5-mm screws on the hinges.

3. Close the display and turn the computer over.

4. Route the display cable and wireless (WLAN, WWAN, and WPAN) cables, and fit the cables under each tab in the cable routing channels, including the tabs on the rear of the assembly.

5. Connect the WWAN antenna cables to the WWAN card and place any unused antenna cables in the base assembly cable holders next to the card slot.

6. Connect the WPAN antenna cable to the WPAN card and place any unused antenna cables in the base assembly cable holders next to the card slot.

7. Connect the WLAN antenna cables to the WPAN card, and place any unused antenna cables in the base assembly cable holders next to the card slot.

8. Connect the display cable to the display cable connector on the system board.

9. Replace the hinge covers (see Replacing the Hinge Covers).

10. Replace the bottom of the base assembly (see Replacing the Bottom of the Base Assembly).

11. Replace the battery (see Replacing the Battery).

Removing the Display Bezel

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the instructions in Before Working on Your Computer.

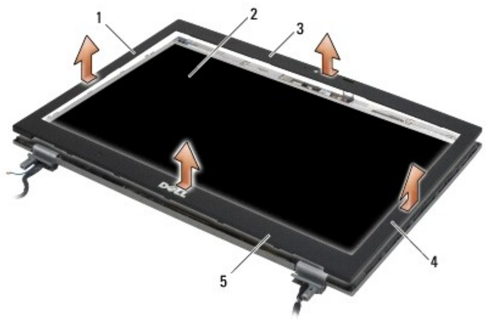
2. Remove the display assembly (see Removing the Display Assembly).

CAUTION: **To avoid damage to the bezel and the display screen, exercise care while removing the bezel from the display cover.**

CAUTION: **To release the snaps on the left and right sides of the bezel, push the bezel sides away or out from the display while lifting the bezel. To release the snaps along the top and the bottom of the bezel, pull the bezel top or bottom towards or in to the display while lifting the bezel. Special attention is required for the corners, especially for bezels used with LED display panels.**

3. Lift and unsnap the bezel from the left and right sides, and the top and the bottom of the display panel.

4. Once all snaps are released, lift the bezel from the display assembly.



1	left side of bezel	2	display panel
3	top of bezel	4	right side of bezel
5	bottom of bezel		

Replacing the Display Bezel

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Align the latch hook on the display panel with the small rectangular opening on the display bezel.

CAUTION: **To engage the snaps on the left and right sides of the bezel, pull the bezel sides towards or in to the display while pushing down on the bezel. To engage the snaps along the top and bottom of the bezel, push the bezel top or bottom away or out from the display while pushing down on the bezel.**

2. Starting at any corner, gently snap the bezel into place to secure it to the display panel.

3. Replace the display assembly (see Replacing the Display Assembly).

Removing the Display Panel

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

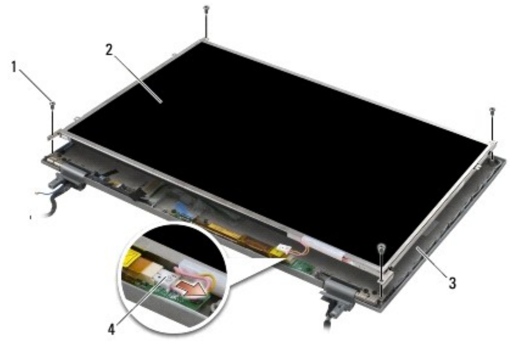
1. Follow the instructions in Before Working on Your Computer.

2. Remove the display assembly (see Removing the Display Assembly).

3. Remove the display bezel (see Removing the Display Bezel).

4. Remove the four M2.5 x 5-mm screws from the display panel.

Removing the CCFL Display Panel



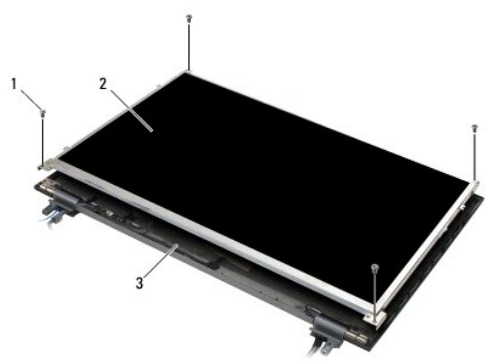
1	M2.5 x 5-mm screws (4)	2	display panel
3	display cover	4	inverter backlight cable

1. Disconnect the inverter backlight cable from the inverter.

CAUTION: Be careful not to damage the display with the hinges and cables on the display cover.

2. Lift the display panel out of the display cover and lay the display panel flat on your workspace.
3. Disconnect the display cable and press the release tabs to remove the cable.
4. Remove the display panel brackets, if needed (see Removing the Display Panel Brackets).

Removing the LED Display Panel



1	M2.5 x 5-mm screws (4)	2	display panel
3	display cover		

CAUTION: Be careful not to damage the display with the hinges and cables on the display cover.

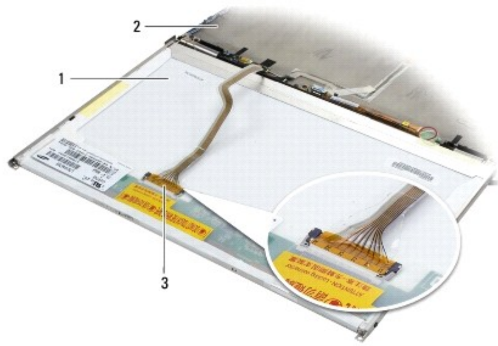
1. Lift the display panel out of the display cover and lay the display panel flat on your workspace.
2. Pull the pull-tab to disconnect the display cable.

Replacing the Display Panel

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

Replace the display panel brackets if you removed them (see Replacing the Display Panel Brackets).

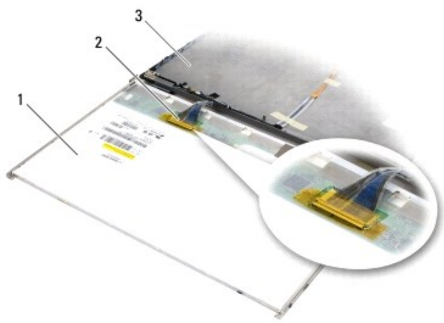
Replacing the CCFL Display Panel



1	display panel	2	display cover
3	display cable		

1. Connect the display cable to the connector on the back of the display panel.
2. Route the display cable around the notch on the display cover and set the display panel in place.
3. *C*onnect the inverter backlight cable to the inverter.
4. Replace the two M2.5 x 5-mm screws securing the display panel to the display cover.
5. Replace the display bezel (see Replacing the Display Bezel).
6. Replace the display assembly (see Replacing the Display Assembly).

Replacing the LED Display Panel



1	display panel	2	display cable
3	display cover		

1. Connect the display cable to the connector on the back of the display panel.
2. Route the display cable around the notch on the display cover and set the display panel in place.
3. Replace the four M2.5 x 5-mm screws securing the display panel to the display cover.
4. Replace the display bezel (see Replacing the Display Bezel).
5. Replace the display assembly (see Replacing the Display Assembly).

Removing the Display Panel Brackets

1. Remove the two M2.5 x 5-mm screws (and two plastic plugs for CCFL displays) from the display panel brackets on either side of the display panel.

2. Remove the display panel brackets.



1	display panel	2	M2.5 x 5-mm screws (2 each)
3	plastic plugs (2) (CCFL displays only)	4	display panel brackets

Replacing the Display Panel Brackets

NOTE: The display panel brackets are labeled "L" (left) and "R" (right).

1. Replace the display panel brackets.

2. Replace the two M2.5 x 5-m screws (and two each plastic plugs for CCFL displays) on the display panel brackets.

Display Inverter

Removing the Display Inverter

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the instructions in Before Working on Your Computer.

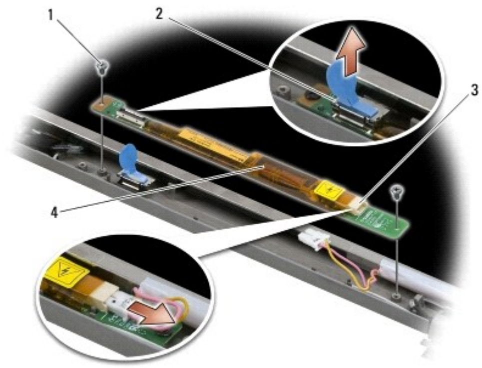
2. Remove the display assembly (see Removing the Display Assembly).

3. Remove the display bezel (see Removing the Display Bezel).

4. Remove the two M2 x 3-mm screws from the display inverter.

5. Disconnect the two display inverter connectors.

6. Lift the display inverter out of the display cover.



1	M2 x 3-mm screws (2)	2	display inverter connector
3	display inverter connector	4	display inverter

Replacing the Display Inverter

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

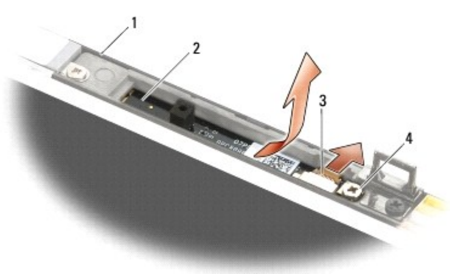
1. Connect the two display inverter connectors to the display inverter.
2. Replace the two M2 x 3-mm screws securing the display inverter.
3. Replace the display bezel (see Replacing the Display Bezel).
4. Replace the display assembly (see Replacing the Display Assembly).

Removing the Camera and Microphone Assembly

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

NOTE: The camera and microphone assembly is optional and may not have shipped with your computer if you did not order them.

1. Follow the instructions in Before Working on Your Computer.
2. Remove the display assembly (see Removing the Display Assembly).
3. Remove the display bezel (see Removing the Display Bezel).
4. Lift the connector lever on the camera/microphone cable.
5. Loosen the M2 x 3-mm captive screw, lift the camera/microphone assembly up at an angle and disconnect the camera/microphone cable.



1	display cover	2	camera microphone assembly
3	camera microphone cable	4	M2 x 3-mm screw (1)

Replacing the Camera and Microphone Assembly

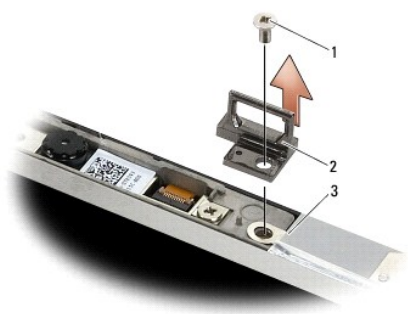
Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Slide the cable connector of the camera/microphone cable into the connector on the camera/microphone assembly.
2. Close the lever on the connector on the camera/microphone assembly.
3. Angle in and align the camera/microphone assembly with the notch on the display cover.
4. Tighten the M2 x 3-mm screw securing the camera/microphone assembly to the display cover.
5. Replace the display bezel (see Replacing the Display Bezel).
6. Replace the display assembly (see Replacing the Display Assembly).

Removing the Latch Hook Assembly

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the instructions in Before Working on Your Computer.
2. Remove the display assembly (see Removing the Display Assembly).
3. Remove the display bezel (see Removing the Display Bezel).
4. Remove the M2.5 x 5-mm screw.
5. Push in from the front and lift the stabilizer bars to pull out.



1	M2.5 x 5-mm screw	2	latch hook assembly
3	display cover		

Replacing the Latch Hook Assembly

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Place the latch hook assembly on the display cover, aligning the screw holes on the assembly and the cover.
2. Replace the M2.5 x 5-mm screw.
3. Replace the display bezel (see Replacing the Display Bezel).
4. Replace the display assembly (see Replacing the Display Assembly).

Removing the Display Cover

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the instructions in Before Working on Your Computer.

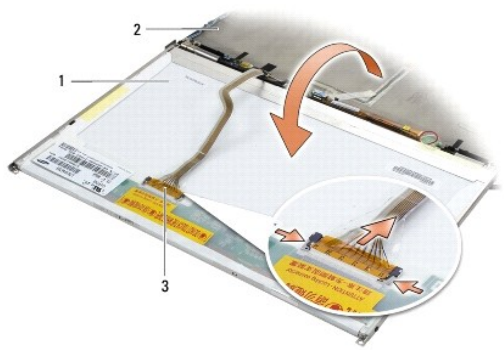
2. Remove the display assembly (see Removing the Display Assembly).

3. Remove the display bezel (see Removing the Display Bezel).

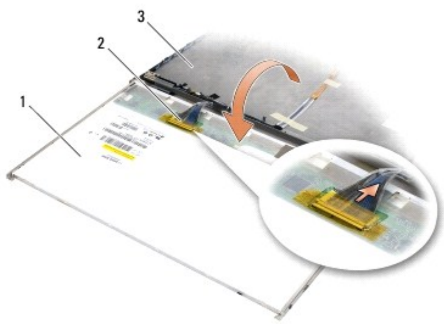
4. Remove the display panel (see Removing the Display Panel).

5. Remove the camera and microphone assembly, if present (see Removing the Camera and Microphone Assembly).

6. Disconnect the display cable from the back of the display panel and lift away the panel.



1	display panel	2	display cover
3	display cable		



1	display panel	2	display cable
3	display cover		

Replacing the Display Cover

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Remove the packaging of the display cover.

2. Connect the display cable to the connector on the back of the display panel.

3. Replace the camera and microphone assembly, if present (see Replacing the Camera and Microphone Assembly).

CAUTION: When replacing the display panel, ensure no unconnected cables on the display cover get caught underneath the panel.

4. Replace the display panel (see Replacing the Display Panel).

5. Replace the display bezel (see Replacing the Display Bezel).

6. Replace the display assembly (see Removing the Display Assembly).

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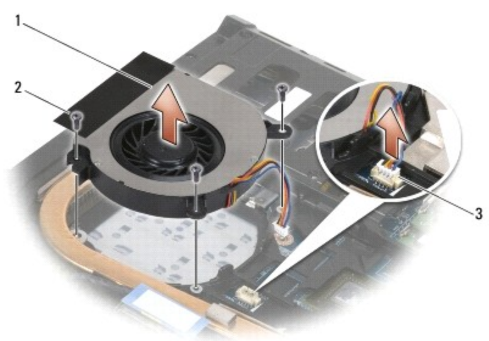
Fan

Dell™ Latitude™ E6500 Service Manual

Removing the Fan

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the instructions in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
4. Remove the three M2.5 x 5-mm screws that secure the fan to the base of the computer.
5. Disconnect the fan connector from the system board.
6. Lift the fan up at an angle to remove it.



1	fan	2	M2.5 x 5-mm screws (3)
3	fan connector		

Replacing the Fan

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Insert the fan at an angle, and push down aligning the screws holes in the fan with the screw holes in the heat sink.
2. Replace the three M2.5 x 5-mm screws to secure the fan to the base of the computer.
3. Connect the fan connector to the system board connector.
4. Replace the bottom of the base assembly (see Replacing the Bottom of the Base Assembly).

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Flash Cache Modules

Dell™ Latitude™ E6500 Service Manual

- Removing an FCM
- Replacing an FCM

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

Flash Cache Modules (FCMs) are internal memory cards that help improve the performance of your computer. You can install FCMs in either the WWAN or WPAN Mini-Card slot.

NOTE: FCMs are compatible with Windows Vista® operating system only.

If you ordered an FCM card with your computer, the card is already installed.

Removing an FCM

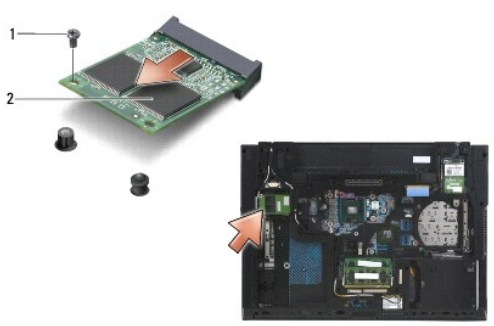
1. Follow the procedures in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
4. Remove the left hinge cover (see Removing the Hinge Covers).
5. Remove the M2x3 screw from the FCM card.

   The card pops up to a 45-degree angle.

6. Slide the FCM card at a 45-degree angle out of its connector.



1	M2x3 screw	2	WPAN/UWB/FCM card



1	M2x3 screw	2	WWAN/FCM card

Replacing an FCM

CAUTION: The connectors are keyed to ensure correct insertion. If you feel resistance, check the connectors on the card and on the system board, and realign the card.

CAUTION: To avoid damage to the FCM card, ensure the cables are not under the card when you replace the card.

CAUTION: The Mini-Card slot has WPAN/UWB/FCM silk-screened inside the slot. Do not install FCM cards in any other Mini-Card slot.

1. Slide the FCM card into the connector.
2. Press the card down to the alignment post and hold in position.
3. Replace the screw in the FCM card.
4. Replace the left hinge cover (see Replacing the Hinge Covers).
5. Replace the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
6. Replace the battery (see Replacing the Battery).

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Hard Drive

Dell™ Latitude™ E6500 Service Manual

- Removing the Hard Drive
- Replacing the Hard Drive

NOTE: Dell does not guarantee compatibility or provide support for hard drives obtained from sources other than Dell.

Removing the Hard Drive

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

Do not touch the metal housing of the hard drive if you remove the hard drive from the computer while the drive is hot.

CAUTION: Do not remove the hard drive while the computer is on or in sleep state. This might cause data loss.

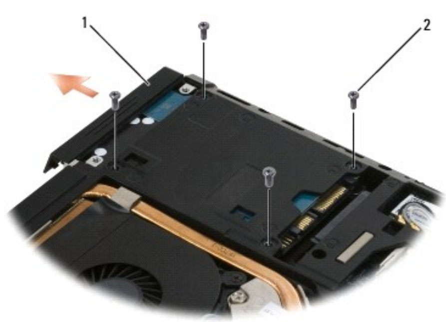
CAUTION: Hard drives are fragile. Handle them carefully. When the hard drive is not in the computer, store it in protective antistatic packaging.

To remove the hard drive from the hard drive bay:

1. Follow the procedures in Before Working on Your Computer.
2. Place the computer upside down on a clean, flat surface.
3. Remove the bottom of the base assembly (seeRemoving the Bottom of the Base Assembly).

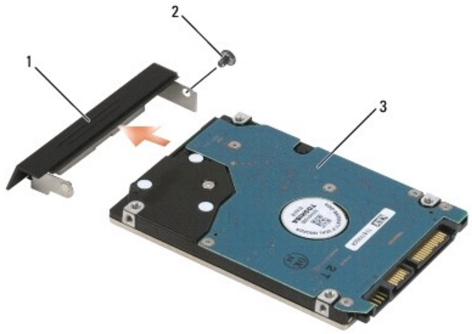
   NOTE: The hard drive can be removed with or without removing the bottom of the base assembly. However, if you are removing more than just the hard drive, you'll have to remove the bottom of the base assembly first.

4. Remove the four M3 x 3-mm screws (marked with an "H") that secure the hard drive.
5. Slide the hard drive out of the computer.



1	hard drive assembly	2	M3 x 3mm screws (4)

6. Remove the M3 x 3mm screw from the bezel and take the bezel off the hard drive.



1	hard drive bezel	2	M3 x 3mm screw
3	hard drive		

Replacing the Hard Drive

1. If you are replacing the hard drive with a new one, remove the new drive from its packaging.

   Save the original packaging for storing or shipping the hard drive being replaced.

2. Attach the bezel to the hard drive using the M3 x 3mm screw.

3. Slide the hard drive into the bay until it is fully seated.

CAUTION: Use firm and even pressure to slide the drive into place. If you use excessive force, you may damage the connector.

4. If removed, replace the bottom of the base assembly (see Replacing the Bottom of the Base Assembly).

5. Replace and tighten the four M3 x 3-mm hard-drive screws.

6. Replace the battery.

7. Turn the computer over so the top side is up, open the display, and start your computer.

8. If you have installed a new drive, try and boot it. If it doesn't boot:

   - Use your operating system installation media to install the operating system for your computer (for more information, see your *Setup and Quick Reference Guide*).
   - Use the *Drivers and Utilities* media to install the drivers and utilities for your computer (see your *Setup and Quick Reference Guide* for information).

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Hinge Covers

Dell™ Latitude™ E6500 Service Manual

- Removing the Hinge Covers
- Replacing the Hinge Covers

Removing the Hinge Covers

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

The hinge covers are not interchangeable; the left one covers the Multimode DisplayPort, and the right one covers the RJ-45 network connector.

1. Follow the procedures in Before Working on Your Computer.

2. Close the display and turn the computer over.

3. Remove the two M2.5 x 5-mm screws from the hinge covers.

4. Slide each hinge cover off the computer and lift to remove it.



1	hinge covers	2	RJ-11 network connector
3	M2.5 x 5-mm screws (2 each)	4	Multimode DisplayPort

Replacing the Hinge Covers

1. Slide the left hinge cover over the Multimode DisplayPort and slide the right hinge cover over the RJ-45 network connector.

2. Replace the two M2.5x5-mm screws in each hinge cover.

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Keyboard

Dell™ Latitude™ E6500 Service Manual

Removing the Keyboard

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the procedures in Before Working on Your Computer.
2. Remove the hinge covers (see Removing the Hinge Covers).
3. Remove the LED cover (see Removing the LED Cover).
4. Remove the two M2 x 3-mm screws along the top of the keyboard.

CAUTION: The key caps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Exercise care when removing and handling the keyboard.

5. Using the pull tab, gently lift the top of the keyboard only, then lift out at an angle to remove the keyboard from its connector.



1	keyboard	2	M2 x 3-mm screws (2)
3	blue pull tab		

Replacing the Keyboard

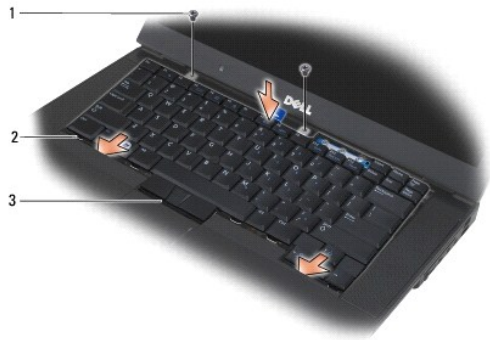
Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

CAUTION: The key caps on the keyboard are fragile, easily dislodged, and time-consuming to replace. Exercise care when removing and handling the keyboard.

1. Holding the top of the keyboard slightly above the computer, slide the bottom of the keyboard in at an angle, and fit the tabs and keyboard connector along the bottom of the keyboard beneath the front-inside edge of the palm rest.

   NOTE: Pressing down on the ALT keys helps to seat the keyboard properly.

2. Press each side to snap the keyboard into place.
3. Replace the two M2 x 3-mm screws at the top of the keyboard.



1	M2 x 3-mm screws (2)	2	tabs (5)
3	keyboard connector		

4. Replace the dashboard panel from the top of the keyboard and carefully snap the panel.

5. Replace the LED cover (see Replacing the LED Cover).

6. Replace the hinge covers (see Replacing the Hinge Covers).

7. Close the display and turn the computer over.

8. Replace the battery (see Replacing the Battery).

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LED Cover

Dell™ Latitude™ E6500 Service Manual

- [Removing the LED Cover](#)
- [Replacing the LED Cover](#)

Removing the LED Cover

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the procedures in [Before Working on Your Computer](#).

2. Using a plastic scribe, starting from the right edge of the LED cover, gently pry up the LED cover.

3. Remove the LED cover from the computer.



1	LED cover	2	scribe

Replacing the LED Cover

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Replace the LED cover.

2. Starting from the outer edge, gently push down the LED cover until it locks into place.

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Memory

Dell™ Latitude™ E6500 Service Manual

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

CAUTION: If your computer has only one memory module, install the memory module in the socket labeled "DIMM A".

CAUTION: If you remove your original memory modules from the computer during a memory upgrade, keep them separate from any new modules that you may have, even if you purchased the new modules from Dell. If possible, do not pair an original memory module with a new memory module. Otherwise, your computer may not function optimally.

NOTE: Memory modules purchased from Dell are covered under your computer warranty.

Removing a Memory Module

Your computer supports the following modules:

Size	Slot	Windows XP	Windows Vista
512 MB	DIMM A	X	X
1 GB	DIMM A or DIMM A and DIMM B	X	X
2 GB	DIMM A or DIMM A and DIMM B	X	X
3 GB	DIMM A and DIMM B	X	X
4 GB	DIMM A or DIMM A and DIMM B		X
8 GB	DIMM A and DIMM B		X

Your computer has two user-accessible SODIMM sockets, referred to as DIMM A and DIMM B. DIMM A is the slot closest to the system board and always contains a memory module. The DIMM B socket may contain an additional module for improved system memory performance. If the module in the DIMM A socket must be replaced and DIMM B is installed, DIMM B must be removed first.

1. Follow the procedures in Before Working on Your Computer.

2. Lay the computer upside down onto a clean, flat surface.

3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).

DIMM B

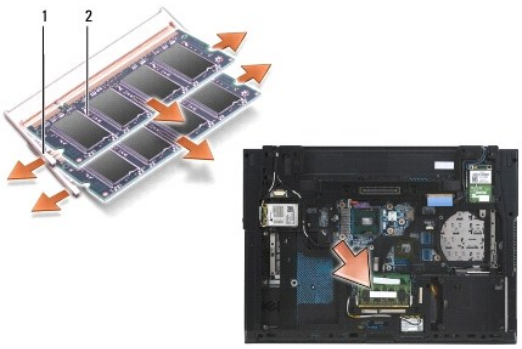
The DIMM B socket may or may not be populated with a memory module, depending on the configuration of your computer. When viewing the memory compartment from the underside of the computer, the DIMM B socket is uppermost and DIMM A is closest to the system board.

Removing the DIMM B Module

CAUTION: To prevent damage to the memory module connector, do not use tools to spread the memory-module retaining clips.

1. To remove the DIMM B module, spread away the retaining clips from the side edges of the memory module and lift the free edge of the module so that it sits at about a 45-degree angle to the system board.

1	memory-module retaining clips (2)	2	memory module



2. Grasp the module at the side edges and pull it straight away from the connector. Place the module into anti-static packaging.

DIMM A

CAUTION: To prevent damage to the memory module connector, do not use tools to spread the memory-module retaining clips.

1. To remove the DIMM A module, spread away the retaining clips from the side edges of the memory module and lift the free edge of the module so that it sits at about a 45-degree angle to the system board.

2. Grasp the module at the side edges and pull it straight away from the connector. Place the module into anti-static packaging such as an anti- static bag.

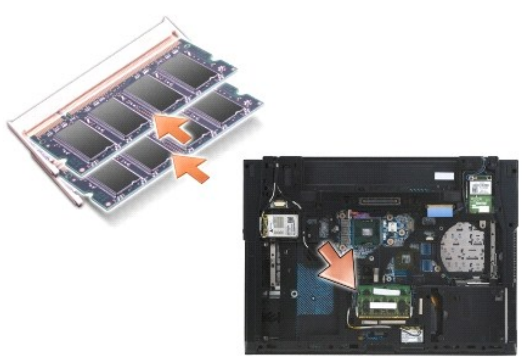
Replacing a Memory Module

DIMM B

1. Ground yourself by touching a bare-metal part in the computer chassis.

2. Remove the memory module from its anti-static packaging and, grasping the module at the side edges, align the slot in the module edge connector with the key in the socket connector.

3. Gently slide the memory module into the DIMM B connector at a 45-degree angle to the system board until it is fully seated.



4. Push the long edge of the memory module down until retaining clips lock the module in place.

NOTE: If the memory module is not installed properly, the retaining clips will not hold the module securely and the computer may not boot properly. No error message indicates this failure.

DIMM A

The DIMM A socket is the one closest to the system board. If a memory module is installed in the DIMM B socket, it must be removed before a memory module in the DIMM A socket can be replaced.

1. Ground yourself by touching a bare-metal part in the computer chassis.

2. Remove the memory module from its anti-static packaging and, grasping the module at the side edges, align the slot in the module edge connector with the key in the DIMM A socket connector.

3. Gently slide the memory module into the socket connector at a 45-degree angle to the system board until it is fully seated.

4. Push the long edge of the memory module down until retaining clips lock the module in place.

   NOTE: If the memory module is not installed properly, the retaining clips will not hold the module securely and the computer may not boot properly. No error message indicates this failure.

5. If a memory module is installed into the DIMM B socket, replace it using procedures in DIMM B.

Operation of the Computer

To verify your computer operates correctly:

1. Slide the bottom of the base assembly into place and tighten the captive screw.

2. Insert the battery into the battery bay, or connect the AC adapter to your computer and an electrical outlet.

3. Set the computer upright and open the display.

4. Start your computer. As the computer boots, it detects the additional memory and automatically updates the system configuration information. Verify that the memory capacity shown on the display is what is expected.

5. To confirm the amount of memory installed in the computer:

   - In the Microsoft® Windows Vista® operating system, click **Start** → **Help and Support** → **Computer Information**.
   - In the Microsoft Windows® XP operating system, right-click the **My Computer** icon on your desktop, click **Properties**, and then click **General**.

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Modem

Dell™ Latitude™ E6500 Service Manual

Removing the Modem

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the procedures in [Before Working on Your Computer](#).
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see [Removing the Bottom of the Base Assembly](#)).
4. Remove the hinge covers (see [Removing the Hinge Covers](#)).
5. Remove the palm rest assembly ([Removing the Palm Rest Assembly](#)).
6. Remove the orange modem flex-cable by pushing the tabs forward and removing the cable.
7. Remove the black RJ11 modem cable from the modem.
8. Remove the M2 x 3-mm screw from the modem.
9. Remove the modem.



1	modem	2	M2 x 3-mm screw
3	orange modem flex-cable	4	black RJ11 modem cable

Replacing the Modem

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Place the modem into the base assembly.
2. Insert the black RJ11 modem cable into the space provided on the base assembly.
3. Replace the M2 x 3-mm screw to secure the modem to the I/O daughter card.
4. Connect the black RJ11 modem cable to the modem.
5. Connect the orange modem flex-cable to the I/O daughter card.
6. Replace the palm rest assembly ([Replacing the Palm Rest Assembly](#)).

7. Replace the hinge covers (see Replacing the Hinge Covers).

8. Replace the bottom of the base assembly (see Replacing the Bottom of the Base Assembly).

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Optical Drive

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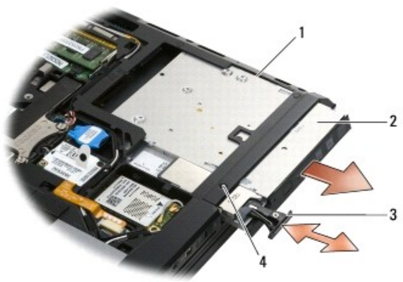
The optical drive bay supports either an optical drive, a second hard drive, or an air bay for travel.

Removing the Optical Drive

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

NOTE: The optical drive security screw is optional and may not be installed on your computer.

1. Follow the procedures in [Before Working on Your Computer](#).
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see [Removing the Bottom of the Base Assembly](#)).
4. If a security screw is in place, remove it from the drive.
5. Push the drive lever in to release it.
6. Pull the drive out of the optical bay.



1	media bay	2	optical drive
3	drive lever	4	security screw (optional)

Replacing the Optical Drive

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

NOTE: The optical drive security screw is optional and may not be installed on your computer.

1. Slide the drive in the optical bay.
2. Push the release latch in to secure the drive.
3. If a security screw was removed, replace the security screw.
4. Replace the bottom of the base assembly (see [Replacing the Bottom of the Base Assembly](#)).
5. Replace the battery (see [Replacing the Battery](#)).

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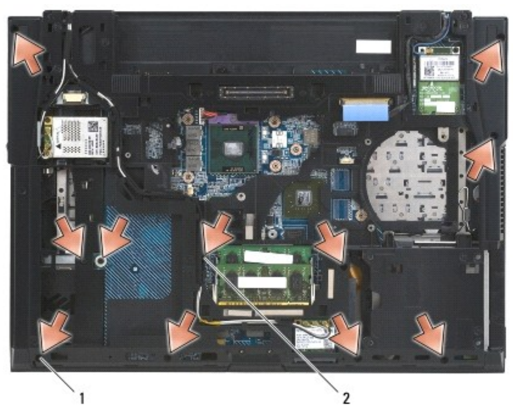
Palm Rest Assembly

Dell™ Latitude™ E6500 Service Manual

Removing the Palm Rest Assembly

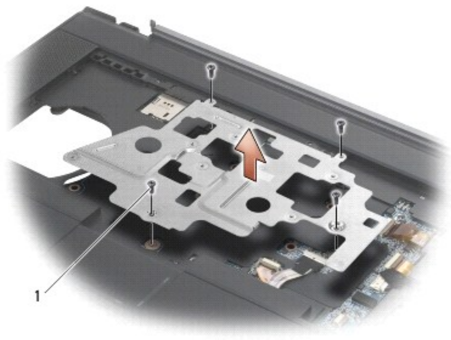
Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the instructions in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
4. Remove the hard drive (see Removing the Hard Drive).
5. Remove the optical drive (see Removing the Optical Drive).
6. Remove the fan with the thermal-cooling assembly (see Removing the Processor Thermal-Cooling Assembly).
7. Remove the LED cover (see Removing the LED Cover)
8. Remove the keyboard (see Removing the Keyboard).
9. Remove the hinge covers (see Removing the Hinge Covers).
10. Remove the display assembly (see Removing the Display Assembly).
11. Turn the computer over and remove the 10 M2.5 x 5-mm screws and one M2.5 x 8 screw.



1	M2.5 x 5 screws (10)	2	M2.5 x 8 screw

12. Turn the computer top-side up and remove the four M2.5 x 5-mm screws labeled "P".
13. Lift off the thermal plate.



1	M2.5 x 5 screws (4)

14. Use the blue pull tab to disconnect the wireless catcher cable from the system board.

15. Lift the lever up to disconnect the speaker cable from the system board.

16. Use the black pull tab to disconnect the touch pad cable from the system board.

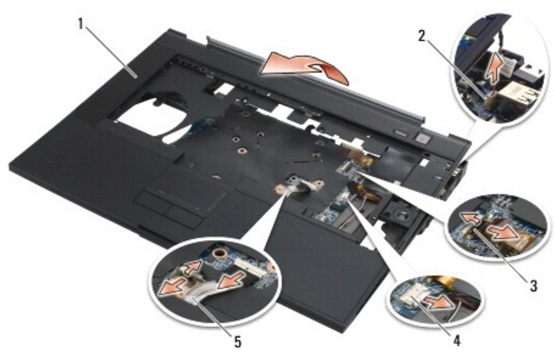
17. Lift the lever up to disconnect the contact-less smart-card cable from the system board.

18. Lift the lever up to disconnect the fingerprint reader cable from the system board (optional).

CAUTION: Do not use force to separate the palm rest from the computer. If you encounter resistance, gently flex or apply pressure to the palm rest, or move along the edge, working away from the area of resistance, until the palm rest is free.

19. Remove the silk-screen bar.

20. Lift the left side of the palm rest, push in on the right side to release the palm rest, then gently lift it from the computer.



1	palm rest	2	suspend switch cable
3	fingerprint reader cable	4	speaker cable
5	touch pad cable		

Replacing the Palm Rest Assembly

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Angle and connect the right side of the palm rest, then lower and snap the left side into place.

2. Replace the right speaker (see Replacing the Right-Speaker and Fingerprint Reader Cover).

3. Replace the silk-screen bar.

4. Connect the contactless smart-card cable, the touch pad cable, the speaker cable, the wireless switch cable, and the fingerprint reader cable (optional) to the system board.
5. Replace the four M2.5 x 5-mm screws, two on the silk-screen bar and two on the palm rest.
6. Turn the computer over and replace the eleven M2.5 x 5-mm screws on the bottom of the computer to secure the palm rest.
7. Replace the fan (see Replacing the Fan).
8. Replace the optical drive (see Replacing the Optical Drive).
9. Turn the computer top-side up and replace the keyboard (see Replacing the Keyboard).
10. Replace the display assembly (see Replacing the Display Assembly).
11. Replace the hinge covers (see Replacing the Hinge Covers).
12. Replace the bottom of the base assembly (see Replacing the Bottom of the Base Assembly).
13. Replace the battery (see Replacing the Battery).

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Power Module

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- Removing the Power Module
- Replacing the Power Module

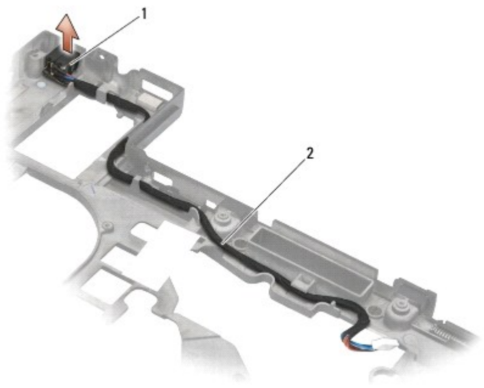
Removing the Power Module

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the instructions in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
4. Remove the coin-cell battery (see Removing the Coin-Cell Battery).
5. Remove the hard drive (see Removing the Hard Drive).
6. Remove the optical drive (see Removing the Optical Drive).
7. Remove the LED cover (see Removing the LED Cover).
8. Remove the keyboard (see Removing the Keyboard).
9. Remove the speaker/fingerprint reader cover (see Removing the Right- Speaker and Fingerprint Reader Cover).
10. Remove the fan (see Removing the Fan).
11. Remove the processor thermal-cooling assembly (see Removing the Processor Thermal-Cooling Assembly).
12. Remove the hinge covers (see Removing the Hinge Covers).
13. Remove the display assembly (see Removing the Display Assembly).
14. Remove the palm rest assembly (see Removing the Palm Rest Assembly).
15. Remove the card cage (see Removing the Card Cage).
16. Remove the three M2.5 x 5-mm screws labeled with white arrows from the system board.
17. Pull out on the top left corner of the base assembly to release the power, USB, and serial connectors.

CAUTION: Do not remove the wireless card, memory module, or processor from the system board.

18. Remove the system board (see Removing the System Board Assembly.
19. Disconnect and unroute the power cable.
20. Remove the power connector from the base assembly.



1	DC power connector	2	DC power cable

Replacing the Power Module

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Position the DC power cable in the base assembly, aligning the guides on the connector sides with the base.
2. Connect the DC power cable to the system board (see illustration in Removing the Power Module for proper cable routing).
3. Replace the system board (see Replacing the System Board Assembly).
4. Replace the card cage (see Replacing the Card Cage).
5. Replace the palm rest (see Replacing the Palm Rest Assembly).
6. Replace the right-speaker/fingerprint reader cover (see Replacing the Right-Speaker and Fingerprint Reader Cover).
7. Replace the processor thermal-cooling assembly (see Replacing the Processor Thermal-Cooling Assembly).
8. Replace the keyboard (see Replacing the Keyboard).
9. Replace the LED cover (see Replacing the LED Cover).
10. Replace the display assembly (see Replacing the Display Assembly).
11. Replace the hinge covers (see Replacing the Hinge Covers).
12. Replace the optical drive (see Replacing the Optical Drive).
13. Replace the hard drive (see Replacing the Hard Drive).
14. Replace the bottom of the base assembly (see Replacing the Bottom of the Base Assembly).

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Right-Speaker and Fingerprint Reader Cover

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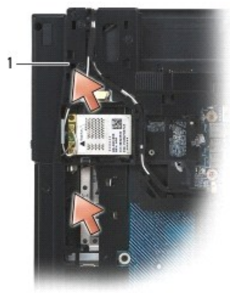
Removing the Right-Speaker and Fingerprint Reader Cover

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

CAUTION: Hard drives are fragile. Handle them carefully.

NOTE: If you don't have a fingerprint reader, ignore steps to remove or install the reader.

1. Follow the procedures in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the hard drive (see Removing the Hard Drive).
4. Remove the optical drive (see Removing the Optical Drive).
5. Remove the LED cover (see Removing the LED Cover).
6. Remove the keyboard (see Removing the Keyboard).
7. Loosen the two captive screws (indicated by an **S** stenciled on the base plate).



1	captive screws (2)

8. Turn the computer top-side up.
9. Remove the fingerprint reader cable (if you have a fingerprint reader).
10. Remove the speaker/fingerprint reader cover.



Replacing the Right-Speaker and Fingerprint Reader Cover

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

CAUTION: If you are installing a new fingerprint reader/speaker cover assembly, remove the backing paper from the bottom of the cable.

1. If you have a fingerprint reader, connect the fingerprint reader cable. Press along the cable to seal the cable into the palm rest.
2. Snap the speaker/fingerprint reader cover into place
3. Turn the computer upside down, and tighten the two M2.5 x 5-mm captive screws.
4. Replace the keyboard (see Replacing the Keyboard).
5. Replace the LED cover (see Replacing the LED Cover).
6. Replace the optical drive (see Replacing the Optical Drive).
7. Replace the hard drive (see Replacing the Hard Drive)
8. Replace the battery (see Replacing the Battery).

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System Board Assembly

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- Removing the System Board Assembly
- Replacing the System Board Assembly

The system board's BIOS chip contains the Service Tag, which is also visible on a barcode label on the bottom of the computer. The replacement kit for the system board includes media that provides a utility for transferring the Service Tag to the replacement system board.

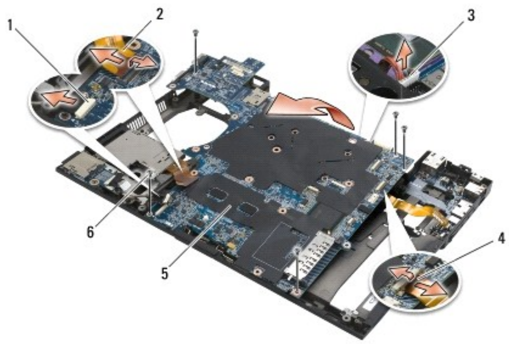
Removing the System Board Assembly

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

1. Follow the instructions in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
4. Remove the Mini-Card from the WWAN/FCM card slot, if present (see Removing a WWAN Card or Removing an FCM).
5. Remove the Mini-Card from the WLAN/WiMax card slot, if present (see Removing a WLAN/WiMax Card).
6. Remove the hinge covers (see Removing the Hinge Covers).
7. Remove the Mini-Card in the WPAN/UWB/FCM card slot, if present (see Removing a WPAN/UWB Card or Removing an FCM).
8. Remove the hard drive (see Removing the Hard Drive).
9. Disconnect the coin-cell battery cable from the system board (see Removing the Coin-Cell Battery).
10. Remove the memory modules (see Removing a Memory Module).
11. Remove the processor thermal-cooling assembly (see Removing the Processor Thermal-Cooling Assembly).
12. Remove the processor (see Removing the Processor Module).
13. Remove the fan (see Removing the Fan).
14. Remove the optical drive (see Removing the Optical Drive).
15. Remove the display assembly (see Display).
16. Remove the keyboard (see Removing the Keyboard).
17. Remove the speaker/fingerprint reader cover (see Removing the Right- Speaker and Fingerprint Reader Cover).
18. Remove the palm rest assembly (see Removing the Palm Rest Assembly).
19. Remove the card cage (see Removing the Card Cage).
20. Disconnect the power cable.
21. Disconnect the Secure Digital card cable from the system board.
22. Disconnect the ExpressCard cable from the system board.
23. Disconnect the I/O daughter card cable from the system board.
24. Remove the five M2.5 x 5-mm screws labeled with white arrows from the system board.
25. Pull out on the top left corner of the base assembly to release the power, USB, and serial connectors.

26. Lift the top right edge of the system board to disconnect it from the I/O daughter card, then carefully lift the system board out of the computer.

27. Unroute the power cable.



1	Secure Digital cable connector	2	ExpressCard-cage cable connector
3	DC power cable connector	4	I/O daughter card (expansion ports) cable connector
5	system board	6	M2.5 x 5-mm system board screws (5)

Replacing the System Board Assembly

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

CAUTION: Ensure no loose cables get caught beneath the system board.

To replace the system board, follow the removal steps in reverse order:

1. Route the power cable and place the power connector in the base assembly.
2. Insert the bottom edge of the system board into the base of the computer, ensuring that the system board is placed under the metal latch mechanism.
3. Lower the top of the system board to reconnect the power, USB, and serial connectors.
4. Connect the top right of the system board to the I/O daughter card connector.
5. Place the top side of the system board in the base.
6. Replace the five M2.5 x 5-mm screws on the top of the system board.
7. Connect the ExpressCard cable to the system board.
8. Connect the Secure Digital card cable to the system board.
9. Connect the power cable.
10. Replace the card cage (see Replacing the Card Cage).
11. Replace the palm rest assembly (see Replacing the Palm Rest Assembly).
12. Replace the speaker/fingerprint reader cover (see Replacing the Right- Speaker and Fingerprint Reader Cover).
13. Replace the keyboard (see Replacing the Keyboard).
14. Replace the display assembly (see Replacing the Display Assembly).
15. Replace the optical drive (see Removing the Optical Drive).
16. Replace the fan (see Replacing the Fan).

17. Replace the processor (see Replacing the Processor Module).

18. Replace the processor thermal-cooling assembly (see Replacing the Processor Thermal-Cooling Assembly).

19. Replace the memory modules (see Replacing a Memory Module).

20. Reconnect the coin-cell battery cable (see Replacing the Coin-Cell Battery).

21. Replace the hard drive (see Replacing the Hard Drive).

22. Replace the WPAN card (see Replacing a WPAN/UWB Card).

23. Replace the hinge covers (see Replacing the Hinge Covers).

24. Replace the WLAN card (see Replacing a WLAN/WiMax Card).

25. Replace the WWAN card (see Replacing a WWAN Card).

26. Replace the bottom of the base assembly (see Replacing the Bottom of the Base Assembly).

CAUTION: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

27. Turn on the computer.

    NOTE: If you use a BIOS update program CD to flash the BIOS, press <F12> before inserting the CD in order to set the computer to boot from the CD for one time only. Otherwise, you must enter the system setup program to change the default boot order.

28. Flash update the BIOS (see Flashing the BIOS for more information).

29. Enter the system setup program to update the BIOS on the new system board with the computer Service Tag. For information about the system setup program, see the *Dell™ Technology Guide* on your computer or on the Dell Support website at s**upport.dell.com**.

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NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

WARNING: A WARNING indicates potential for property damage, personal injury, or death.

If you purchased a DELL™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

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Troubleshooting

Dell™ Latitude™ E6500 Service Manual

Troubleshooting Tools

Diagnostic Lights

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

Your computer has three keyboard status lights located above the keyboard. During normal operation, the keyboard status lights display the current status (*on* or *off*) of the Num Lock, Caps Lock, and Scroll Lock features. If the computer starts without error, the lights flash, and then turn off. If the computer malfunctions, however, you can use the status of the lights to help identify the problem.

NOTE: After the computer completes POST, the Num Lock light may remain on, depending on your BIOS settings. For more information on using the system setup program, see the *Dell™ Technology Guide* on your computer or on the Dell Support website at **support.dell.com**.

Diagnostic Light Codes During POST

To troubleshoot a problem with your computer, read the sequence of the keyboard status lights in order from left to right (Num Lock, Caps Lock, and then Scroll Lock). If the computer malfunctions the individual lights display a status of either *On* , *Off* , or *Flashing* .

Light Pattern	Problem Description	Suggested Resolution
	No memory modules are detected.	• If two or more memory modules are installed, remove the modules (see Removing a Memory Module), then reinstall one module (see Replacing a Memory Module) and restart the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error. • If available, install working memory of the same type into your computer (see Memory). • If the problem persists, contact Dell Technical Support.
	Memory modules are detected, but a memory failure has occurred.	• If two or more memory modules are installed, remove the modules (see Removing a Memory Module), then reinstall one module (see Replacing a Memory Module) and restart the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error. • If available, install working memory of the same type into your computer (see Memory). • If the problem persists, contact Dell Technical Support.
	A possible processor failure has occurred.	• Reseat the processor (see Removing the Processor Module). • If the problem persists, contact Dell Technical Support.
	A possible graphics card/video failure has occurred.	• Reseat any installed graphics cards. • If available, install a working graphics card into your computer. • If the problem persists, contact Dell Technical Support.
	A possible display failure has occurred.	• Reseat the display cable (see Removing the Display Assembly). • If the problem persists, contact Dell Technical Support.
	SPD data indicates all SODIMMs are unusable.	• Remove the unusable memory module (see Removing a Memory Module). • Replace with a usable memory module (see Replacing a Memory Module).

Hardware Troubleshooter

If a device is either not detected during the operating system setup, or is detected but incorrectly configured, you can use the **Hardware Troubleshooter** to resolve the issue.

Windows® XP:

1. Click **Start** → **Help and Support**.

2. Type `hardware troubleshooter` in the search field and press <Enter> to start the search.

3. In the **Fix a Problem** section, click **Hardware Troubleshooter**.

4. In the **Hardware Troubleshooter** list, select the option that best describes the problem, and click **Next** to follow the remaining troubleshooting steps.

Windows Vista®:

1. Click the Windows Vista start button **,** and click **Help and Support.**

2. Type `hardware troubleshooter` in the search field and press <Enter> to start the search.

3. In the search results, select the option that best describes the problem and follow the remaining troubleshooting steps.

Dell™ Diagnostics

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

When to Use the Dell Diagnostics

If you experience a problem with your computer, perform the checks in Solving Problems, and then run the Dell Diagnostics before contacting Dell for assistance.

Start the Dell Diagnostics from your hard drive or from the *Drivers and Utilities* media provided with your computer.

NOTE: The *Drivers and Utilities* media is optional and may not ship with your computer.

NOTE: The Dell Diagnostics only operate on Dell computers.

Starting the Dell Diagnostics From Your Hard Drive

Before running the Dell Diagnostics, enter system setup to review your computer's configuration information, and ensure that the device you want to test is displayed in system setup and is active. For more information on using the system setup program, see the *Dell™ Technology Guide* on your computer or on the Dell Support website at **support.dell.com.**

The Dell Diagnostics is located on a separate diagnostic utility partition on your hard drive.

NOTE: If the computer is connected to a docking device (docked), undock it. See the documentation that came with your docking device for instructions.

NOTE: If your computer does not display a screen image, contact Dell Technical Support.

1. Ensure the computer is connected to a known-good electrical outlet.

2. Press and hold the <Fn> key or the mute button then turn on your computer.

   NOTE: Alternatively, you can select **Diagnostics** from the one-time boot menu at startup to boot to the diagnostic utility partition and run the Dell Diagnostics.

   The computer runs the Pre-boot System Assessment (PSA), a series of initial tests of your system board, keyboard, display, memory, hard drive, etc.

   - During the assessment, answer any questions that appear.
   - If failures are detected during the Pre-boot System Assessment, write down the error code(s) and contact Dell Technical Support.
   - If the Pre-boot System Assessment completes successfully, the following message appears: "`Booting Dell Diagnostic Utility Partition. Press any key to continue.`"

   NOTE: If you see a message stating that no diagnostics utility partition has been found, run the Dell Diagnostics from your *Drivers and Utilities* media (see Starting the Dell Diagnostics From the Drivers and Utilities Media).

3. Press any key to start the Dell Diagnostics from the diagnostics utility partition on your hard drive.

4. Press <Tab> to select **Test System** and then press <Enter>.

   NOTE: It is recommended that you select **Test System** to run a complete test on your computer. Selecting **Test Memory** initiates the extended memory test, which can take up to thirty minutes or more to complete. When the test completes, record the test results and then press any key to return to the previous menu.

5. At the Dell Diagnostics Main Menu, left-click with the touch pad/mouse, or press <Tab> and then <Enter>, to select the test you want to run (see Dell

Diagnostics Main Menu).

NOTE: Write down any error codes and problem descriptions exactly as they appear and follow the instructions on the screen.

6. After all tests have completed, close the test window to return to the Dell Diagnostics Main Menu.

7. Close the Main Menu window to exit the Dell Diagnostics and restart the computer.

NOTE: If you see a message stating that no diagnostics utility partition has been found, run the Dell Diagnostics from your *Drivers and Utilities* media (see Starting the Dell Diagnostics From the Drivers and Utilities Media).

Starting the Dell Diagnostics From the Drivers and Utilities Media

Before running the Dell Diagnostics, enter system setup to review your computer's configuration information, and ensure that the device you want to test is displayed in system setup and is active. For more information on using the system setup program, see the *Dell™ Technology Guide* on your computer or on the Dell Support website at **support.dell.com.**

1. Insert the *Drivers and Utilities* media into the optical drive.

2. Restart your computer.

3. When the DELL logo appears, press <F12> immediately.

   NOTE: Keyboard failure may result when a key is held down for extended periods of time. To avoid possible keyboard failure, press and release <F12> in even intervals to open the Boot Device Menu.

   If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop, then shut down your computer and try again.

4. When the boot device list appears, use the up- or down- arrow keys to highlight **CD/DVD/CD-RW Drive** then press <Enter>.

   NOTE: Using the one-time boot menu changes the boot sequence for the current boot only. Upon restart, the computer boots according to the boot sequence specified in system setup.

5. Press any key to confirm that you want to start from the CD/DVD.

   If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop, then shut down your computer and try again.

6. Press 1 to **Run the 32 Bit Dell Diagnostics**.

7. At the **Dell Diagnostics Menu**, press 1 to select **Dell 32-bit Diagnostics for Resource CD (graphical user interface)**.

8. Press <Tab> to select **Test System** and press <Enter>.

   NOTE: It is recommended that you select **Test System** to run a complete test on your computer. Selecting **Test Memory** initiates the extended memory test, which can take up to thirty minutes or more to complete. When the test completes, record the test results and then press any key to return to the previous menu.

9. At the Dell Diagnostics Main Menu, left-click with the mouse, or press <Tab> and then <Enter>, to select the test you want to run (see Dell Diagnostics Main Menu).

   NOTE: Write down any error codes and problem descriptions exactly as they appear and follow the instructions on the screen.

10. After all tests have completed, close the test window to return to the Dell Diagnostics Main Menu.

11. Close the Main Menu window to exit the Dell Diagnostics and restart the computer.

12. Remove the *Drivers and Utilities* media from the optical drive.

Dell Diagnostics Main Menu

After the Dell Diagnostics loads, the following menu appears:

Option	**Function**
Test Memory	Run the stand-alone memory test

Test System	Run system diagnostics
Exit	Exit the diagnostics

Press <Tab> to select the test you want to run and then press <Enter>.

NOTE: It is recommended that you select **Test System** to run a complete test on your computer. Selecting **Test Memory** initiates the extended memory test, which can take up to thirty minutes or more to complete. When the test completes, record the test results and then press any key to return to this menu.

After **Test System** is selected, the following menu appears:

Option	**Function**
Express Test	Performs a quick test of devices in the system. This typically can take 10 to 20 minutes. **NOTE:** The **Express Test** requires no interaction on your part. Run **Express Test** first to increase the possibility of tracing a problem quickly.
Extended Test	Performs a thorough check of devices in the system. This typically can take 1 hour or more. **NOTE:** The **Extended Test** periodically requires your input to answer specific questions.
Custom Test	Use to test a specific device or customize the tests to be run.
Symptom Tree	This option allows you to select tests based on a symptom of the problem you are having. This option lists the most common symptoms.

NOTE: It is recommended that you select **Extended Test** to perform a more thorough check of devices in the computer.

For any problem encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description exactly as it appears and follow the instructions on the screen. If you cannot resolve the problem, contact Dell Technical Support.

NOTE: When contacting Dell Technical Support, have your Service Tag ready. The Service Tag for your computer is located at the top of each test screen.

The following tabs provide additional information for tests run from the Custom Test or Symptom Tree option:

Tab	**Function**
Results	Displays the results of the test and any error conditions encountered.
Errors	Displays error conditions encountered, error codes, and the problem description.
Help	Describes the test and any requirements for running the test.
Configuration	Displays the hardware configuration for the selected device. The Dell Diagnostics obtains configuration information for all devices from System Setup, memory, and various internal tests, and displays the information in the device list in the left pane of the screen. The device list may not display the names of all components installed on your computer or all devices attached to your computer.
Parameters	Allows you to customize the test, if applicable, by changing the test settings.

Error Messages

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

If the error message is not listed, see the documentation for the operating system or the program that was running when the message appeared.

`A filename cannot contain any of the following characters: \ / : * ? " < > |`

Do not use these characters in filenames.

`A required .DLL file was not found`

The program that you are trying to open is missing an essential file. To remove and then reinstall the program:

Windows XP:

1. Click **Start→ Control Panel→ Add or Remove Programs→ Programs and Features**.
2. Select the program you want to remove.
3. Click **Uninstall**.

4. See the program documentation for installation instructions.

Windows Vista:

1. Click **Start** → **Control Panel**→ **Programs**→ **Programs and Features**.

2. Select the program you want to remove.

3. Click **Uninstall**.

4. See the program documentation for installation instructions.

`drive letter :\ is not accessible. The device is not ready`

The drive cannot read the disk. Insert a disk into the drive and try again.

`Insert bootable media`

Insert a bootable floppy disk, CD, or DVD.

`Non-system disk error`

Remove the floppy disk from the floppy drive and restart your computer.

`Not enough memory or resources. Close some programs and try again`

Close all windows and open the program that you want to use. In some cases, you may have to restart your computer to restore computer resources. If so, run the program that you want to use first.

`Operating system not found`

Contact Dell Technical Support.

Solving Problems

Follow these tips when troubleshooting your computer:

- If you added or removed a part before the problem started, review the installation procedures and ensure that the part is correctly installed.
- If a peripheral device does not work, ensure that the device is properly connected.
- If an error message appears on the screen, write down the exact message. This message may help support personnel diagnose and fix the problem(s).
- If an error message occurs in a program, see the program's documentation.

NOTE: The procedures in this document were written for the Windows default view, so they may not apply if you set your Dell computer to the Windows Classic view.

Battery Problems

There is a danger of a new battery exploding if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

Drive Problems

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

Ensure that Microsoft® Windows® Recognizes the drive

Windows XP:

- Click **Start** and click **My Computer**.

Windows Vista:

- Click Start and click **Computer**.

If the drive is not listed, perform a full scan with your antivirus software to check for and remove viruses. Viruses can sometimes prevent Windows from recognizing the drive.

Test the drive

- Insert another disc to eliminate the possibility that the original drive is defective.
- Insert a bootable floppy disk and restart the computer.

Clean the drive or disk

For information on cleaning your computer, see the *Dell™ Technology Guide* on your computer or on the Dell Support website at **support.dell.com**.

Check the cable connections

Run the Hardware Troubleshooter

See Hardware Troubleshooter.

Run the Dell Diagnostics

See Dell™ Diagnostics.

Optical drive problems

NOTE: High-speed optical drive vibration is normal and may cause noise, which does not indicate a defect in the drive or the media.

NOTE: Because of different regions worldwide and different disc formats, not all DVD titles work in all DVD drives.

Adjust the Windows volume control

- Click the speaker icon in the lower-right corner of your screen.
- Ensure the volume is turned up by clicking the slidebar and dragging it up.
- Ensure the sound is not muted by un-checking any checked boxes.

Check the speakers and subwoofer

See Sound and Speaker Problems.

Problems writing to an optical drive

Close other programs

The optical drive must receive a steady stream of data during the writing process. If the stream is interrupted, an error occurs. Try closing all programs before you write to the optical.

Turn off standby mode in Windows before writing to a disc

For information about setting power options, see the *Dell™ Technology Guide* on your computer or on the Dell Support website at **support.dell.com**. You can also search for the keyword *standby* in **Windows Help and Support** for information on power management modes.

Hard drive problems

Run Check Disk

Windows XP:

1. Click **Start** and click **My Computer**.
2. Right-click **Local Disk C:**.
3. Click **Properties** → **Tools** → **Check Now**.
4. Check the box **Scan for and attempt recovery of bad sectors** and click **Start**.

Windows Vista:

1. Click **Start** and click **Computer**.
2. Right-click **Local Disk C:**.
3. Click **Properties** → **Tools** → **Check Now**.

   The **User Account Control** window may appear. If you are an administrator on the computer, click **Continue**; otherwise, contact your administrator to continue the desired action.

4. Follow the instructions on the screen.

IEEE 1394 Device Problems

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

NOTE: Your computer supports only IEEE 1394a standard.

Ensure that the cable for the IEEE 1394 device is properly inserted into the device and into the connector on the computer

Ensure that the IEEE 1394 device is enabled in system setup

For more information on using the system setup program, see the *Dell™ Technology Guide* on your computer or on the Dell Support website at **support.dell.com**.

Ensure that the IEEE 1394 device is recognized by Windows

Windows XP:

1. Click **Start** and click **Control Panel**.
2. Under **Pick a Category**, click **Performance and Maintenance** → **System** → **System Properties** → **Hardware** → **Device Manager**.

Windows Vista:

1. Click **Start** → **Control Panel** → **Hardware and Sound**.
2. Click **Device Manager**.

If your IEEE 1394 device is listed, Windows recognizes the device.

If you have problems with a Dell IEEE 1394 device

Contact Dell Technical Support.

If you have problems with an IEEE 1394 device not provided by Dell

Contact the IEEE 1394 device manufacturer.

Lockups and Software Problems

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

The computer does not start up

Check the diagnostic lights

See Power Problems.

Ensure the power cable is firmly connected to the computer and to the electrical outlet

The computer stops responding

CAUTION: You may lose data if you are unable to perform an operating system shutdown.

Turn the computer off

If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds (until the computer turns off), and then restart your computer.

A program stops responding

End the program

1. Press <Ctrl><Shift><Esc> simultaneously to access the Task Manager.
2. Click the **Applications** tab.
3. Click to select the program that is no longer responding.
4. Click **End Task**.

A program crashes repeatedly

NOTE: Most software includes installation instructions in its documentation or on a floppy disk, CD, or DVD.

Check the software documentation

If necessary, uninstall and then reinstall the program.

A program is designed for an earlier Windows operating system

Run the Program Compatibility Wizard

Windows XP:

The Program Compatibility Wizard configures a program so that it runs in an environment similar to non-XP operating system environments.

1. Click **Start** → **All Programs** → **Accessories** → **Program Compatibility Wizard** → **Next**.
2. Follow the instructions on the screen.

Windows Vista:

The Program Compatibility Wizard configures a program so that it runs in an environment similar to non-Windows Vista operating system environments.

1. Click **Start** → **Control Panel** → **Programs** → **Use an older program with this version of Windows**.

2. In the welcome screen, click **Next**.

3. Follow the instructions on the screen.

A solid blue screen appears

Turn the computer off

If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds (until the computer turns off), and then restart your computer.

Other software problems

Check the software documentation or contact the software manufacturer for troubleshooting information

- Ensure that the program is compatible with the operating system installed on your computer.
- Ensure that your computer meets the minimum hardware requirements needed to run the software. See the software documentation for information.
- Ensure that the program is installed and configured properly.
- Verify that the device drivers do not conflict with the program.
- If necessary, uninstall and then reinstall the program.

Back up your files immediately

Use a virus-scanning program to check the hard drive, floppy disks, CDs, or DVDs

Save and close any open files or programs and shut down your computer through the Start menu

Memory Problems

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

If you receive an insufficient memory message

- Save and close any open files and exit any open programs you are not using to see if that resolves the problem.
- See the software documentation for minimum memory requirements. If necessary, install additional memory (see Replacing a Memory Module).
- Reseat the memory modules (see Memory) to ensure that your computer is successfully communicating with the memory.
- Run the Dell Diagnostics (see Dell™ Diagnostics).

If you experience other memory problems

- Reseat the memory modules to ensure that your computer is successfully communicating with the memory (see Memory).
- Ensure you are following the memory installation guidelines (see Replacing a Memory Module).
- Ensure the memory you are using is supported by your computer. For more information about the type of memory supported by your computer, see the *Setup and Quick Reference Guide* for your computer on the Dell Support website at **support.dell.com**.
- Run the Dell Diagnostics (see Dell™ Diagnostics).

Power Problems

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the

Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

If the power light is green and the computer is not responding

See Diagnostic Lights.

If the power light is off

The computer is either turned off or is not receiving power.

- Reseat the power cable in the power connector on the back of the computer and the electrical outlet.
- Bypass power strips, power extension cables, and other power protection devices to verify the computer turns on properly.
- Ensure any power strips being used are plugged into an electrical outlet and are turned on.
- Ensure the electrical outlet is working by testing it with another device, such as a lamp.

Eliminate interference

Some possible causes of interference are:

- Power, keyboard, and mouse extension cables
- Too many devices connected to the same power strip
- Multiple power strips connected to the same electrical outlet

Sound and Speaker Problems

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

No sound from speakers

NOTE: The volume control in MP3 and other media players may override the Windows volume setting. Always check to ensure that the volume on the media player(s) has not been turned down or off.

Adjust the Windows volume control

Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

Disconnect headphones from the headphone connector

Sound from the speakers is automatically disabled when headphones are connected to the computer's front-panel headphone connector.

Eliminate possible interference

Turn off nearby fans, fluorescent lights, or halogen lamps to check for interference.

Run the Hardware Troubleshooter

See Hardware Troubleshooter.

No sound from headphones

Check the headphone cable connection

Ensure that the headphone cable is securely inserted into the headphone connector. See the *Setup and Quick Reference Guide* for your computer on the Dell Support website at **support.dell.com**.

Adjust the Windows volume control

Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

Video and Display Problems

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

△ **CAUTION: If your computer came with a PCI graphics card installed, removal of the card is not necessary when installing additional graphics cards; however, the card is required for troubleshooting purposes. If you remove the card, store it in a safe and secure location. For information about your graphics card, go to support.dell.com.**

Check the diagnostic lights

See Diagnostic Lights.

Check the display settings

See the *Dell™ Technology Guide* on your computer or on the Dell Support website at **support.dell.com**.

Adjust the Windows display settings

Windows XP:

1. Click **Start** → **Control Panel** → **Appearance and Themes**.

2. Click the area you want to change or click the **Display** icon.

3. Try different settings for **Color quality** and **Screen resolution**.

Windows Vista:

1. Click **Start** → **Control Panel** → **Hardware and Sound** → **Personalization** → **Display Settings**.

2. Adjust **Resolution** and **Colors** settings, as needed.

Only part of the display is readable

Connect an external monitor

1. Shut down your computer and connect an external monitor to the computer.

2. Turn on the computer and the monitor and adjust the monitor brightness and contrast controls.

If the external monitor works, the computer display or video controller may be defective. Contact Dell Technical Support.

Dell Technical Update Service

The Dell Technical Update service provides proactive e-mail notification of software and hardware updates for your computer. The service is free and can be customized for content, format, and how frequently you receive notifications.

To enroll for the Dell Technical Update service, go to **support.dell.com/technicalupdate**.

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WLAN/WiMax Cards

Dell™ Latitude™ E6500 Service Manual

- [Removing a WLAN/WiMax Card](#)
- [Replacing a WLAN/WiMax Card](#)

Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

Your computer supports a Wireless Local Area Network (WLAN) card or a WiMax card. If you ordered a WLAN/WiMax card with your computer, the card is already installed.

Removing a WLAN/WiMax Card

1. Follow the procedures in [Before Working on Your Computer](#).

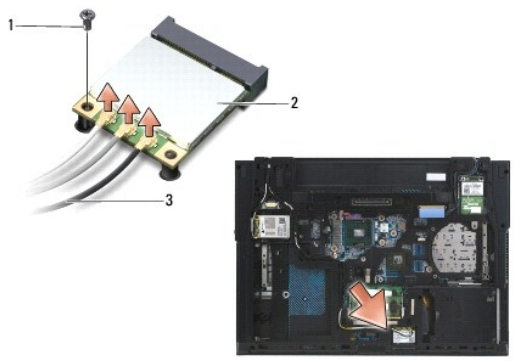
2. Close the display and turn the computer over.

3. Remove the bottom of the base assembly (see [Removing the Bottom of the Base Assembly](#)).

4. Disconnect the antenna cables from the WLAN/WiMax card.

5. Remove the M2x3 screw that secures the WLAN/WiMax card.

   The card will pop up to a 45-degree angle.



1	M2x3 screw	2	WLAN/WiMax card
3	antenna cable connectors (3)		

6. Slide the WLAN/WiMax card out at a 45-degree angle from its connector.



Replacing a WLAN/WiMax Card

CAUTION: The connectors are keyed to ensure correct insertion. If you feel resistance, check the connectors on the card and on the system board, and realign the card.

CAUTION: To avoid damage to the WLAN/WiMax card, ensure the cables are not under the card when you place the card.

NOTE: The card slot will be marked by a WLAN/WiMax silk-screen. Do not install the WLAN/WiMax card into any other card slot.

1. Slide the WLAN/WiMax card into the connector.

2. Press the card down to the alignment post and hold in position.

3. Tighten the screw on the WLAN/WiMax card.

4. Connect the appropriate antenna cables to the WLAN/WiMax card you are installing:

   If the WLAN/WiMax card has two triangles on the label (white and black), connect the white antenna cable to the connector labeled "main" (white triangle), and connect the black antenna cable to the connector labeled "aux" (black triangle). Place the remaining gray cable in the cable holders next to the card slot.

   If the WLAN/WiMax card has three triangles on the label (white, black, and gray), connect the white antenna cable to the white triangle, connect the black antenna cable to the black triangle, and connect the gray antenna cable to the gray triangle.

   NOTE: Ensure the cables are tucked into the cable channel.

5. Replace the bottom of the base assembly (see Removing the Bottom of the Base Assembly).

6. Replace the battery (see Replacing the Battery).

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WPAN/UWB Cards

Dell™ Latitude™ E6500 Service Manual

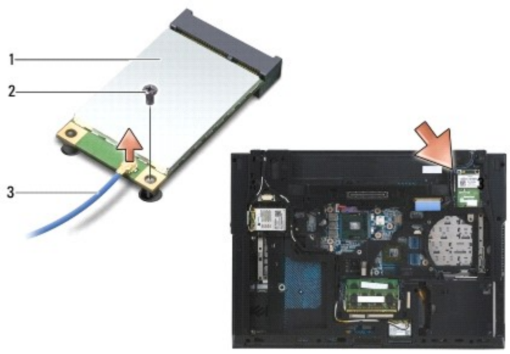
Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

Your computer supports a Wireless Personal Area Network or a Ultra-Wide Band (WPAN/UWB) card. If you ordered a WPAN/UWB card with your computer, the card is already installed.

NOTE: Flash Cache Modules (FCMs) fit into both WWAN and WPAN Mini-Card slots. For more information about FCMs, see [Flash Cache Modules](#).

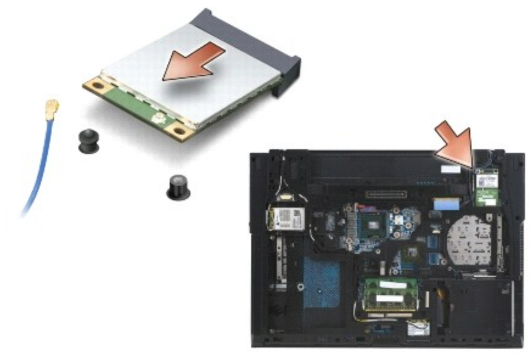
Removing a WPAN/UWB Card

1. Follow the procedures in [Before Working on Your Computer](#).
2. Close the display and turn the computer over.
3. Remove the left hinge cover (see [Removing the Hinge Covers](#)).
4. Remove the bottom of the base assembly (see [Removing the Bottom of the Base Assembly](#)).
5. Disconnect the blue antenna cable from the WPAN/UWB card.
6. Remove the M2x3 screw from the WPAN/UWB card.



1	WPAN/UWB card	2	M2x3 screw
3	antenna cable		

7. Slide the WPAN/UWB card at a 45-degree angle out of its connector.



Replacing a WPAN/UWB Card

CAUTION: The connectors are keyed to ensure correct insertion. If you feel resistance, check the connectors on the card and on the system board, and realign the card.

CAUTION: To avoid damage to the WPAN/UWB card, ensure the cable is not under the card when you replace the card.

CAUTION: WPAN/UWB/FCM is silk-screened inside the Mini-Card slot. Do not install WPAN (BT/UWB) cards in any other slot.

1. Slide the WPAN/UWB card into the connector.
2. Press the card down to the alignment post and hold in position.
3. Replace the screw in the WPAN/UWB card.
4. Connect the blue antenna cable to the WPAN/UWB card.
5. Replace the left hinge cover (see Replacing the Hinge Covers).
6. Replace the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
7. Replace the battery (see Replacing the Battery).

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WWAN Card

Dell™ Latitude™ E6500 Service Manual

- Removing a WWAN Card
- Replacing a WWAN Card

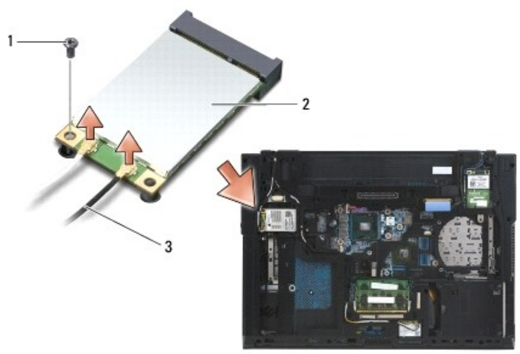
Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at: www.dell.com/regulatory_compliance.

Your computer supports a Wireless Wide Area Network (WWAN) card. If you ordered a WWAN card with your computer, the card is already installed.

NOTE: Flash Cache Modules (FCMs) fit into WWAN and WPAN Mini-Card slots. For more information about FCMs, see Flash Cache Modules.

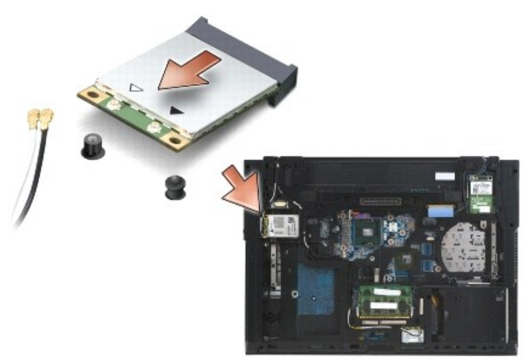
Removing a WWAN Card

1. Follow the procedures in Before Working on Your Computer.
2. Close the display and turn the computer over.
3. Remove the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
4. Disconnect the antenna cables from the WWAN card.
5. Remove the M2 x 3-mm screw that secures the WWAN card. The card will pop up to a 30-degree angle to the system board.



1	M2 x 3 screw	2	WWAN card
3	antenna cable connectors (2)		

6. Slide the WWAN card at a 45-degree angle out of its connector.



Replacing a WWAN Card

CAUTION: The connectors are keyed to ensure correct insertion. If you feel resistance, check the connectors on the card and on the system board, and realign the card.

CAUTION: To avoid damage to the WWAN card, ensure the cables are not under the card when you click the card into place.

CAUTION: The words WWAN/FCM are silk-screened inside the card slot. Do not install WWAN cards in any other Mini-Card slot.

1. Slide the WWAN card into the connector.

2. Press the card down to the alignment post and hold in position.

3. Replace the M2 x 3 screw.

4. Connect the white antenna cable to the connector labeled "main" (white triangle), and connect the black antenna cable to the connector labeled "aux" (black triangle).

5. Replace the bottom of the base assembly (see Removing the Bottom of the Base Assembly).
